We Claim

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1. A method of providing frequency correction for a spread spectrum communication receiver, said receiver being arranged to despread a code-spread signal having a first data rate to provide at least one despread data signal having a second, lower data rate, wherein said method comprises the steps of:

i) determining a frequency offset by processing successive samples of said despread data signal;

ii) generating a correction sequence from said determined frequency offset; and

iii) combining said code-spread signal having said first data rate with said correction sequence obtained from said despread data signal having said second, lower data rate to correct the determined frequency offset.

2. The method of claim 1 further comprising the step of filtering the determined frequency offset prior to the generation of a correction sequence therefrom to reduce noise therein.

3. The method of claim 1 wherein said step of determining a frequency offset includes the performance of a data processing operation comprising the calculation of the mathematical argument of a complex sample multiplied by the complex conjugate of a preceding complex sample.

4. The method of claim 1 wherein the communication system is a code division multiple access communication system and wherein the frequency offset is determined from consecutive symbol samples and the frequency offset is corrected by multiplying received

data by a correction factor prior to despreading to obtain said symbol samples.

5. The method of claim 1 wherein said correction sequence is an up-sampled complex correction sequence $Z_{offs}(k)$, where $Z_{offs}(k)$ is equal to 1 x exp $\{j\varphi_{offs}(k)\}$ where $\varphi_{offs}(k)$ represents phase offset values at the first rate which are linearly interpolated from an average phase difference at the second rate.

6. A spread spectrum communication system comprising a plurality of receivers for receiving transmitted signals, wherein each receiver comprises:
an RF signal receiver for generating an analog signal from a received RF signal;
an analog to digital converter for converting said analog signal into a digital signal;
a digital signal despreader for processing a code-spread signal having a first data rate to obtain a despread digital signal having a second data rate, said second data rate being lower than said first data rate; and
a frequency corrector,
wherein said frequency corrector comprises a feedback loop including a frequency offset detector for obtaining a measure of a frequency offset from said despread digital signal and a frequency correction generator for generating a frequency correction and a combiner for combining said frequency correction with said code-spread signal to correct said frequency offset.

7. A spread spectrum communication system according to claim 6 wherein said feedback loop includes a filter for filtering said measure of said frequency offset to reduce noise therein.

8. A spread spectrum communication system according to claim 6 wherein said frequency offset detector comprises a data processor for performing a mathematical operation of determining the mathematical argument of a complex sample of said despread digital signal multiplied by the complex conjugate of an immediately preceding sample of said despread digital signal.

9. A spread spectrum communication system according to claim 6 wherein said frequency corrector includes a multiplier for multiplying said code-spread signal by a correction factor prior to despreading said code-spread signal.

10. A spread spectrum communication system according to claim 6 wherein said frequency correction generator comprises an interpolator for calculating phase offset values for said code-spread signal from an average phase difference calculated from samples of said despread signal.

11. A spread spectrum communication system according to claim 6 wherein said communication system is a code division multiple access system.

12: A spread spectrum communication system according to claim 6 wherein said communication system is a wireless local loop link.

13. A receiver for a spread spectrum communication system comprising:

an RF signal receiver for generating an analog signal from a received RF signal;

an analog to digital converter for converting said analog signal into a digital signal;

a digital signal despreader for processing a code-spread signal having a first data rate to obtain a despread digital signal having a second data rate, said second data rate being lower than said first data rate; and

a frequency corrector,

wherein said frequency corrector comprises a feedback loop including a frequency offset detector for obtaining a measure of a frequency offset from said despread digital signal and a frequency correction generator for generating a frequency correction and a combiner for combining said frequency correction with said code-spread signal to correct said frequency offset.

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